

What is claimed is:

1. A solid state laser comprising a solid state laser medium, a pumping light source disposed by the side surface of said solid state laser medium for pumping said solid state laser medium and a reflection portion for returning back to said solid state laser medium said pumping light from said pumping light source that is not absorbed by said solid state laser medium,

characterized in that the surface of said solid state laser medium facing said pumping light source is a light incident surface for making the pumping light parallel in said solid state laser medium, and the surface of said solid state laser medium facing said reflection portion is flat for returning the reflection light from said reflection portion back to said solid state laser medium in a parallel manner.

2. A solid state laser medium of claim 1, wherein the shape of the light incident surface portion of said solid state laser medium is arcuate in cross section in perpendicular to the side surface.

3. A solid state laser of claim 1, wherein the shape of the light incident surface portion of said solid state laser medium is polygonal.

4. A solid state laser of claim 1, wherein the entire surface of said solid state laser medium is formed with a reflection layer except the portion facing said pumping light source and the reflection layer constitutes said reflection portion.

5. A solid state laser of claim 1, wherein the outer circumference of said solid state laser medium is covered by a heat sink except the portion facing said pumping light source, and the surface of said heat sink facing the flat surface of said solid state laser medium is made as a mirror surface that constitutes said reflection portion.

6. A solid state laser of claim 1, wherein said solid state laser medium is made from an anisotropic crystal and is disposed so that the c-axis of the crystal is substantially parallel with the polarization of said pumping light from said pumping light source.

7. A solid state laser of claim 1, wherein said solid state laser medium is made from an isotropic crystal and is disposed so that the pumping light from said pumping light source is substantially parallel with the crystal.

8. A solid state laser of claim 6, wherein the crystal is selected from the group

consisting of Nd:YVO₄, Nd:YAG, Nd:YLF, Nd:GdV₄, Yb:YVO₄, Yb:YAG, Yb:YLF, Yb:GdVO₄, Er:YVO₄, Er:YLF, Er:GdVO₄, Ho:YVO₄, Ho:YAG, Ho:YLF, Ho:GdVO₄ and Ti:AlO₃ and said pumping light source is made of a semiconductor laser.

9. A solid state laser of claim 6, wherein said solid state laser medium is a D-shaped rod having a flat portion, the flat portion of said D-shaped rod acting as said reflection portion of said pumping light.

10. A solid state laser of claim 1, wherein said solid state laser medium is D-shaped rod having a flat portion and is made from an anisotropic crystal having c-axis which is aligned in parallel with the flat portion of said D-shaped rod, said solid state laser medium is covered by a heat sink except the portion facing said pumping light source, and said heat sink has a flat surface facing the flat portion of said D-shaped rod, thereby the c-axis of the crystal is aligned in substantially parallel with the polarization of said pumping light from said pumping light source.